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ABSTRACT

Children's, teachers' and principals' reports are used to estimate the extent of tutoring activities in Israeli elementary schools and to provide information on their implementation. Eight studies evaluating the tutoring process and its effect on achievement, motivation, and self-concept are described. The data show that about 5% of elementary school children were being tutored in 1981, mainly in schools with disadvantaged children. Percentage attendance was high--about 85%. Nearly half the programs involved participants from outside the school, almost certainly as a result of universities, teachers' colleges, and high schools requiring or encouraging community activities. The survey of the eight evaluation studies found that little guidance was provided for tutors and that tutors were likely to face ingrained learning and behavioral difficulties in socially and culturally disadvantaged children. The data show that unguided tutoring had negligible to small effects on achievement, school motivation, and self-concept; guided tutoring had moderate to strong effects on achievement, small effects on motivation and self-concept. It is concluded that guidance and structure must be introduced into Israeli tutoring programs if the desired improvements are to be achieved. (RDN)

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A SURVEY OF TUTORING ACTIVITIES IN ISRAEL AND ASSOCIATED EVALUATION STUDIES

DAN DAVIS
TCHIA SNAPIRI, PNINA GOLAN

Publication No. 96

May 1984

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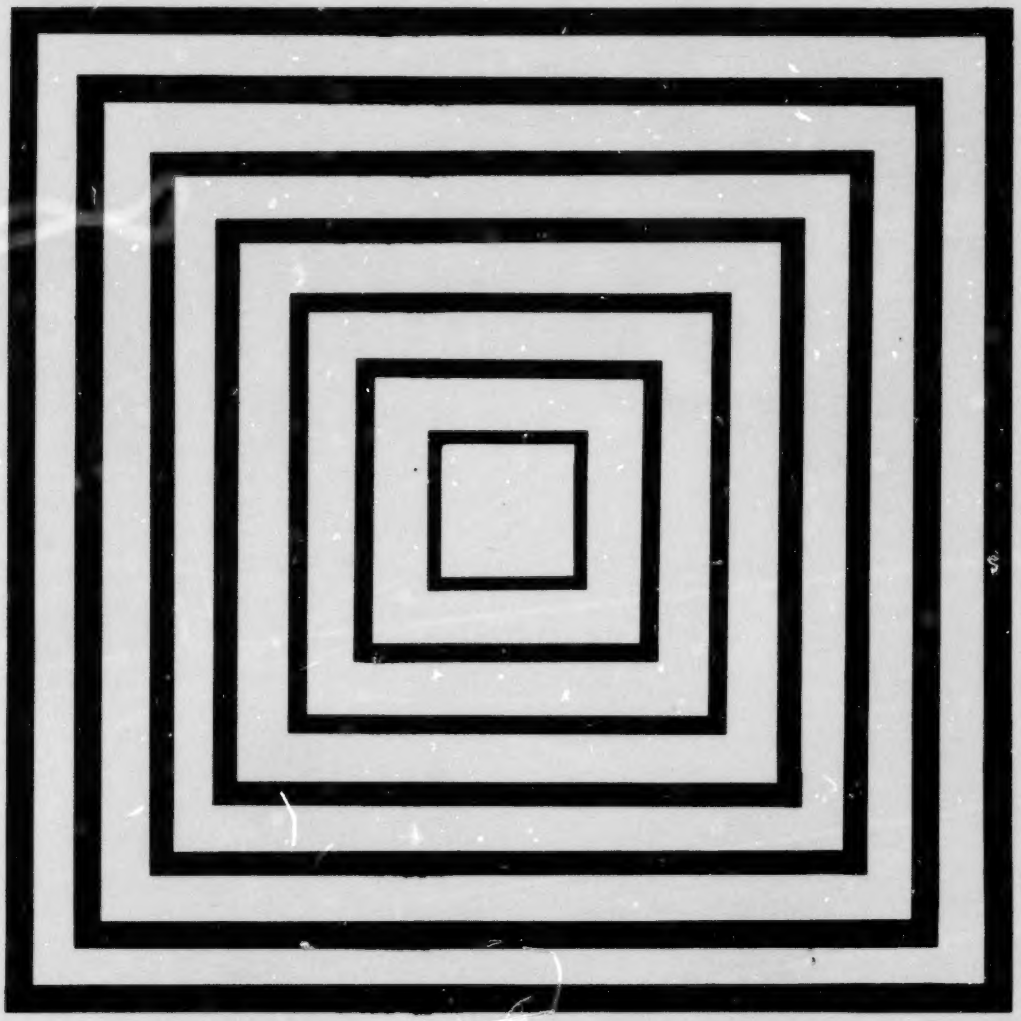

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CORRECTIONS

Page	Line	Instead of:	Should be:
Table of Contents	15	9. A. Program Effects	A. Program Effects
1	6 from bottom	67 Schools	87 Schools
3	3 from bottom	ot tutoring after	of tutoring after
8	6 from bottom	number of tutees	number of participants
20	7	Eisenberg, Fresko, Carmeli, 1980(A), 1980(B), 1982	Eisenberg, Fresko, Carmeli, 1980, 1982
41	13	Table 12	Table 10
46	8 from bottom	ES = .04	ES = -.04
47	3 from bottom	two means of tutoring	two years of tutoring

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ABSTRACT

This survey includes two parts. In the first, childrens', teachers' and principals' reports are used to estimate the extent of tutoring activities in Israeli elementary schools and to provide information on their implementation. In the second part eight evaluation studies are described.

The school survey indicates that about five percent of Israeli elementary school children were being tutored in 1981, reflecting both the singular impact and the heavy investment in this one type of intervention. Most of the tutored children were in schools with many disadvantaged children, reflecting Ministry of Education policy. Most tutorials took place twice a week and each session lasted for two hours. Percentage attendance was high - about 85%.

It was expected that most programs would involve only children in the same school, but almost half the programs had external participants. This was almost certainly a result of the initiative of universities, teachers' colleges and high schools in requiring or encouraging community activities.

The survey of eight evaluation studies examined both the tutoring process and effects of tutoring on achievement, motivation and self-concept. The examination of process reveals that, in general, little or no guidance was provided for tutors and that tutors were likely to face ingrained learning and behavioral difficulties of socially and culturally disadvantaged children.

The achievement test analyses indicated a positive effect for guided tutoring and a negligible effect for unguided tutoring. The findings concerning motivation and self-concept are troubling. It was expected that tutoring effects would be more pronounced in these areas than in achievement. This was clearly not the case, casting doubt on the long-term effects of tutoring.

The results point to the fact that tutoring can be effective in promoting achievement. However, the dominant mode of operation in Israel was autonomous, unstructured tutoring which on the basis of five independent studies did not lead to improved achievement of tutees. Therefore, we see no alternative but to introduce guidance and structure into Israeli tutoring programs.

I. INTRODUCTION

It is generally agreed that individualized teaching strategies can be effective and that in many cases non-professionals can assume important teaching roles. For example, Bloom (1976) has argued that the ideal learning environment, might be seen in the interaction between a gifted and sensitive tutor, and one learner (p.10). It should be noted that Bloom described the ideal tutor as "gifted" and "sensitive", rather than as "qualified" or "professional".

The idea of utilizing non-professionals as tutors is intuitively attractive. Most people feel that they are able to help children experiencing scholastic difficulties and this conception enjoys considerable support in the literature (e.g. Sarbin, 1976; Rappoport et al, 1975). As a result, many tutoring programs have been implemented throughout Israel and there is little doubt that more will be added. Also, relatively low costs contribute to the prevalence of tutoring programs, as well as the fact that they appear to be simple to run. Tutoring is also viewed by academic institutions and teachers' seminars alike as a means of promoting community involvement.

The question remains, however, as to whether Bloom's ideal is effective in all educational settings. For example, the same gifted and sensitive tutor may function very well with a middle-class child having minor difficulties in a school subject, but may not be able to confront ingrained learning and behavioral difficulties of socially and culturally disadvantaged children. Since most tutoring programs in Israel are aimed at such children, it is important to examine conditions which influence tutoring effectiveness.

At the time we wrote the proposal for this study, key reviews indicated mixed results in studies examining tutoring effects on achievement (Allen, 1976, Goodlad, 1979). Since informal reports indicated that tutoring activities were prevalent in Israeli schools, we felt that knowledge of some of these might contribute to the fund of evidence. The purpose of this study was to examine the extent and type of tutoring activities in Israel, together with evidence of their effects on achievement.

It should be noted that 'tutoring' in Israel also includes programs in which social activities are emphasized. However, even in these some time is devoted to studies.

Three surveys were carried out.

A) Fifth grade survey - In a representative sample of 87 schools, fifth grade pupils and their teachers provided detailed reports of extra-curricular activities (including tutoring) during and after school hours.

B) In an ad-hoc sample of 98 schools, principals provided information on the extent and types of tutoring in their schools.

C) Eight evaluation studies were examined and reviewed.

II. SURVEYS OF TUTORING ACTIVITIES

As far as we know there are no available estimates of the extent of tutoring activities in Israel. The reason for this is that tutoring activities are carried out by a variety of agencies both within the educational framework and in the neighborhood. Also, in many cases, tutoring is an ad hoc activity initiated by a particular teacher, neighborhood social worker, or by parents who can afford to hire a private tutor. In the light of these considerations the value of standard surveys of school principals and service agencies in estimating the extent of these activities, is somewhat limited. Therefore, in addition to relying on the reports of school personnel, we decided to ask children directly whether they were being tutored or not. We were able to do this within the framework of a Ministry of Education survey of school inputs, which was carried out in March 1981. The first part of this section describes the results of this survey. The second part describes results taken from a survey of school principals conducted by the In-Service Training Department of the School of Education of the Hebrew University.

A. Tutoring Activities as Reported by Pupils and Their Teachers

In this survey, detailed information of school conditions and activities were obtained from a representative sample of principals, teachers and pupils. In each of 87 schools, one fifth grade class was chosen at random and information obtained from the teacher and all the pupils in the class. The schools comprised a stratified, random sample of schools selected for a survey study of Israeli Elementary Education in 1973 (Minkovich, Davis, Bashi, 1982). That sample was selected to represent the bulk of state supported Hebrew Language schools. Excluded from the sample design were local Kibbutz Schools, Special Education Schools, and schools of the Independent School System (together the latter three school types represented only 15% of the Hebrew Language school population). Of the original sample eight were closed or in the process of closing in 1981, and three did not provide data, so that the present sample included 87 schools (See Davis et al, 1982).

Table 1 presents information concerning the sample of schools and children. The sample of schools was divided into three types: Advantaged schools (0% - 24% disadvantaged pupils according to the Ministry of Education definition); Integrated schools (25% - 69% disadvantaged pupils); Disadvantaged schools (70% - 100% disadvantaged pupils)*. In the following discussion we refer to these as A, I and D schools, respectively.

* A child was defined as disadvantaged on the basis of parents' country of birth, parents' formal schooling, and family size.

Table 1. Sample Description

	Type of School			
	Advantaged (A)	Integrated (I)	Disadvantaged (D)	All Schools
1. Number of Children in Classes Sampled	671	1179	511	2361
2. Number of Children Reporting	631	1105	480	2216
3. Percent of Children Reporting	94	94	94	94
4. Number of Classes and Teachers Sampled	21	42	24	87
5. Average Class Size	32	28	21	27

The teacher's questionnaire included a matrix of pupils' names by activities one of which was 'help by a Tutor'. The teacher was requested to enter a check when a child was participating in a particular activity. The pupil's questionnaire was divided into days of the week. For each day of the week the pupil was asked to list organized activities in which he participated such as clubs, music lessons, and tutoring. In addition, the pupil was asked to record the number of hours spent in each activity and whether the particular activity had actually taken place in the preceding week. Because of its complexity the children's questionnaire was highly structured and was administered in a step by step fashion by a field coordinator of the Educational Welfare Program, with the help of the teacher. The questionnaire was administered in the classroom setting, and took about half an hour to complete. In general, children seemed to enjoy it and to take it seriously.

The questionnaires were administered at the end of March, or beginning of April, 1981.

Results. Our initial approach was to focus primarily on the childrens' reports. This was based on the fact that in a significant number of cases in our own research of tutoring after school hours, we found that some teachers were unaware that certain of their pupils were being tutored, or were unaware that a particular tutoring relationship had been terminated. Using the child's report is clearly preferable but

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it too has problems when it is necessary to obtain the information through questionnaires in a large scale study such as this. In spite of the highly structured questionnaire and step by step guidance provided, we were concerned that children with reading difficulties and/or difficulties in following instructions may not have provided an accurate record of their activities. In general we would expect omissions on their part which would lead to underestimating the amount of tutoring (especially in disadvantaged schools, and to some extent in integrated schools). We therefore decided to base our estimates on both pupil and teacher information, in the expectation that the two sets together would provide a reasonably accurate estimate of the extent of tutoring activities in schools. For example, many children in integrated and disadvantaged schools participate in "homework help" classes during or after school. Generally, this is under the supervision of a teacher, and should not be classified as tutoring. However, in a significant number of cases in disadvantaged and integrated schools the teacher indicated "tutor" while the child indicated 'homework help' or 'homework help with a student'. Since the teacher would know if the child were participating in the special homework help framework and did not indicate this, we felt justified in assuming in these cases that the child was indeed being tutored. There were 14 such cases in disadvantaged schools and five such cases in integrated schools. In the tables that follow these 19 cases have been coded as being tutored.

In 93 percent of the cases, neither the child nor the teacher reported 'tutoring' as an activity. In about three percent of the cases both the child and the teacher reported tutoring as an activity. In about two percent of the cases only the teacher reported tutoring, and in about one percent of the cases only the child reported tutoring. In the A-schools, the disagreement was in the direction of only the child reporting, while the opposite was true in I- and D- schools. The result in the A schools reflects the fact that few outside sources operate tutoring programs in these schools. Therefore, the few children being tutored were probably working with a private tutor engaged by the parents. In I and D schools teachers were much more likely to be aware of children in their classes selected for tutoring in an organized program. But in many cases they were not aware of the progress of the tutoring and, in particular, of the cases where the tutoring had ended. In addition, omissions in the reports of children with problems in reading or following instructions added to the bias of fewer children than teachers reporting tutoring activities.

Looking at the average of teachers' and pupils' data, in table 2 we see that 38% of the fifth grade classes had at least one child being tutored, and that about 5% of the children were being tutored.

According to the Central Bureau of Statistics, in 1981 there were about 56,000 fifth grade children in schools of the type covered by the sampling design. This translates to about 2,800 children being tutored in these schools. If we assume that the same rate exists in the Kibbutz, Special Education, and Independent Schools frameworks, the overall estimate would be 3,300 children. The assumption is probably not justified, and we suggest an estimate of about 3,000 as more realistic. It is clear that proportionately more children in I and D schools were being tutored at the time the survey was carried out. This is a reflection of Ministry of Education policy of channeling more resources to these schools (Davis, Sprinzak and Oseasohn, 1982). Also, the level of participation in classes with some tutoring activities was much higher in I and D schools than it was in A schools. This is a reflection of the fact that in I and D schools much of the tutoring was in the framework of organized programs such as 'Perach' which as a matter of policy tutored many children from each class (Eisenberg, T., Fresko, B., Carmeli, M., 1979).

Table 2: Participation of Children and Classes in Tutoring Activities

	Type of School			
	Advantaged (A)	Integrated (I)	Disadvantaged (D)	All Schools
1. Percent of Children being tutored				
1. Teachers' Reports	0.5	7.6	7.4	5.9
2. Children's Reports	2.2	5.4	4.6	4.4
3. Average	1.4	6.5	6.0	5.2
2. Percent of Classes with at least one child being tutored				
1. Teachers' Reports	14	50	54	43
2. Children's Reports	29	38	28	33
3. Average	23	49	41	38
3. For Classes with at least one tutored child: Median of Percent of Children being tutored				
1. Teachers' Reports	3	13	12	11
2. Children's Reports	3	8	5	6
3. Average	3	11	9	9

In table 3 we report findings on frequency of tutorial meetings, attendance and duration of meetings. In this case, all the information was obtained from the tutees. Overall it can be seen that most tutorials took place twice a week (65%), or once a week (29%). The maximum reported was four times per week and this occurred in only two cases. In A schools as opposed to I and D schools most meetings were once a week.

The majority of children reported a meeting length of two hours or more, an indication that most tutoring was after school hours. Duration of meetings tended to be longer in I and D schools than in A schools. Most university and teachers' college tutorial programs specify at least a two-hour duration and most of these tutors work in I and D schools. Unexpectedly, 25% of the children reported 3 or 4 hour durations. We assume that much of this tutorial time was spent in social or game activities.

As a measure of attendance we counted the number of meetings which should have taken place and compared it with the actual number reported for the previous week*. The results show a high attendance rate in A and I schools (84% and 91% respectively) and very low attendance rate in D schools (38%). Because of the few cases in the D schools we are not confident in interpreting this discrepant result. However, since there were many children in the I school sample, and since the range in percent disadvantaged was quite large, we decided to try an alternative analysis; for the purposes of comparison, we split these integrated schools into two groups, (25% - 50%) disadvantaged, and (51% - 69%) disadvantaged. The results did not indicate lower percent attendance in schools with more disadvantaged children. Therefore, the 38% figure in D schools may not be indicative of the attendance in the D schools. We, therefore, conclude that in I and A schools attendance at tutoring sessions was high, while in D schools it may be lower. It should be noted that our data was for March and April, 1981, both prior to and immediately after the long spring vacation. We have anecdotal information that after the vacation there is a general increase in the cancellation of meetings.

* It should be noted that a few children who reported being tutored did not provide information about number of meetings and/or whether they in fact took place the previous week. Therefore, the number of possible meetings used for calculating attendance is lower than calculated from the first question.

Table 3. Number of Meetings per Week, Duration of Meetings and Attendance

	Type of School							
	Advantaged (A)		Integrated (I)		Disadvantaged (D)		All Schools	
Number of Meetings per Week	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
1	9	69	11	20	2	25	22	29
2	3	23	41	76	5	62.5	49	65
3	1	8	0	0	1	12.5	2	3
4	0	0	2	4	0		2	3
	13	100	54	100	8	100	75	100
Number of Hours per Meeting	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
1	6	67	3	6	0	0	9	13
2	3	33	37	68	4	50	44	62
3	0	0	11	20	1	12.5	12	17
4	0	0	3	6	3	37.5	6	8
	9	100	54	100	8	100	71	100

Attendance	A	I (Low	I High	I Total)	D	All
Maximum Number of Meetings per Week	18	(22	77)	99	13	130
Actual Number of Meetings	15	(18	72)	90	5	110
Percent Attendance	87	(82	94)	91	38	85

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B. The In-Service Survey of School Principals

This survey, conducted jointly by the Ministry of Education and In-Service Training Department of the School of Education, Hebrew University, was concerned with programs which improved "Quality of School Life". Questionnaires were sent to all public schools and principals were asked to describe programs in terms of number of participants, supervision, etc. The returned questionnaires were put at our disposal and have been analyzed as shown in the following section.

Among the 253 returned questionnaires, 98 (39%) reported tutoring activities of some sort. In the previous survey we found that 38% of the fifth grade classes had at least one child being tutored. Although the two estimates are not strictly comparable, it is encouraging that they are so close. The fifth grade result can be viewed as a lower bound of number of participating classes. (Other classes may have had children being tutored in cases where there were none in the sampled fifth grade class). The in-service result can be viewed as a lower bound of number of programs since there may have been omissions by some principals. We therefore conclude that at least 38% of schools had a tutoring program and/or children being tutored in some framework. Among the 98 schools 115 separate programs were described. In most of the following descriptions, programs rather than schools are taken as the unit of analysis.

We note that we are less confident in the analyses of this survey than in those of the first survey. There are several reasons for this:

1. The survey was not specifically designed to obtain information on tutoring.
2. There was a lack of clarity in many of the responses.
3. Only a small percent of the schools responded to the questionnaires.

Participation. Sixty of the 98 schools provided exact numerical reports of both the number of children participating in tutoring activities in the school framework and of the total number of children in the school. In these schools, we found an average enrollment of 427 pupils and an average participation in tutoring activities of 62 children (14.5%). Unfortunately, it was not always clear whether this was the number of participants or the number of tutor-tutee pairs. Therefore, we estimated that in schools with tutoring activities, between 7% to 14% of the children were being tutored. In the first survey we found that in the fifth grade classes with some tutoring activity an average of 9% of the children were being tutored. The two estimates lead us to conclude that in schools with tutoring activities an average of 8% to 10% of the children in participating classes were being tutored.

In order to arrive at an estimate of participation rate over all schools we made three assumptions:

1) Participation rate in schools not providing exact figures was the same as those that did provide exact figures.

2) Average school size was the same in the 60 schools providing exact figures, in the 39 schools not providing exact figures, and in the 155 in which no tutoring activities were reported:

3) The sample of schools responding was representative. Our resulting estimate is that from 2.8% to 5.6% of children in the school system were being tutored.

Table 4 provides information on participation rates for 100 programs. Most programs included less than 40 children and the median participation rate was 26 children. Using this figure with the estimate of average school enrollment of 427 we arrive at an estimate of 3% to 6% participation. This is consistent with the estimate based on the smaller sample of 60 schools, and with the estimate of 5.2% in the fifth grade survey.

Table 4. Number of Children Participating in Tutoring Programs

No. of Pupils	No. of Programs	Percent
1 to 20	42	42
21 to 40	29	29
41 to 60	9	9
61 to 80	8	8
81 to 100	2	2
100+	10	10
Total	100	100%
No information	15	

In Table 5 we see that half the programs involved tutees from grades one to five and tutors from grades four to nine. Most of the remaining programs involved high school pupils with elementary school or middle school children (19 + 13 = 32%). About 13% of the programs involved same age tutors and tutees.

Table 5. Participation of Tutors and Tutees According to Grade Level

Grade Level		No. of Programs	
Tutees	Tutors	Frequency	Percent
Cross Age			
Kindergarten	4-8	6	5
Elementary + kindergarten	9-12	21	19
1-5	4-9	56	50
7-9	10-12	14	13
Same Age			
3-12	3-12	15	13
Total		112	100
No information		3	

Characteristics of Tutoring Programs. The following are the main points revealed by the responses to the questionnaire:

1) In 95% of the programs participation was voluntary (103 out of 109 reporting).

2) In only 36% of the cases was academic or material credit given. (30 out of 84 reporting).

3) In 30% of the cases reports related to the first year of the program (32 out of 105 reporting). Among schools in which the program was already operating before 1981, 13% reported that the program was in its second year, 79% that it was in the third or fourth year, and 13% reported that it was in the fifth or sixth year (out of 23 reporting).

4) In 64% of the programs the tutoring took place after school hours (60 out of 94 reporting).

5) In 46% of the cases external sources such as university students were involved in the program (33 out of 72 reporting).

6) In 70% of the programs the administrator was the school principal, psychologist, or guidance counselor (60 out of 86 reporting). In 30% of the cases a teacher was the administrator.

7) In 92% of the cases success was reported (83 of 90 reporting). The remaining 8% reported "partial success."

C. Summary

The two surveys indicate that about five percent of Israeli school children were being tutored in 1981, reflecting both the singular impact and the heavy investment in this one type of intervention. Most of the tutored children were in D schools, reflecting Ministry of Education policy. Most tutorials took place twice a week and each session lasted for two hours. Percentage attendance was high in A and I schools - about 85%. In D schools percentage attendance may have been much lower, but we cannot be certain of this due to the problems which D children apparently have in providing the relevant information.

We had expected that most programs would involve only children in the same school. To our surprise, almost half the programs had external participants. This is almost certainly a result of the initiative of universities, teachers' colleges and high schools in requiring or encouraging community activities. We see this as a positive development and are encouraged that there is an indication of overall satisfaction of the elementary school recipients.

III. SURVEY OF EVALUATION STUDIES

In this section we describe eight evaluation studies. In six of these studies a single program was investigated in a single report. In one study, a single program was investigated in three reports, and in one study, a single report investigated several programs. The first four studies examined frameworks in which older elementary and secondary school children tutored younger school children. The four remaining studies investigated programs in which university and teachers' college students tutored elementary school children.

Where possible the results of the studies are presented in terms of effect sizes (ES). To do this we first calculated the difference between the means of experimental and control groups and divided by the standard deviation of the control group (Glass, 1976). Following Cohen (1977) we refer to this as a "d-score". In cases where pre and post data were used, the effect size was the difference between the post-test and pre-test d-scores. In cases where analysis of covariance was used, the effect size was based on the d-score using corrected post-test means.

The studies varied greatly in terms of both clarity and detail. This is reflected in the differing length and scope of our descriptions of the studies.* Over and above this consideration, we have laid particular stress on the two studies which examined process (nos. 5 and 8).

1. Bar-Eli, and Raviv, 1982

In this study, 5th and 6th grade underachievers tutored 2nd grade underachievers in mathematics. The tutor-tutee pairs met three times a week in place of the tutees' mathematics classes. The tutors met once a week with the 2nd grade teachers to review the week's work and to plan the coming week's sessions. The program lasted about four months with the number of tutoring sessions varying from 26 to 40.

Both tutor and tutees were randomly assigned to the experimental or control groups. Initially there were 18 tutor-tutee experimental pairs, and 18 tutor-control children and 18 tutee-control children. Three pairs did not complete tutoring and were not included in the analysis.

* Rather than drop studies completely we preferred to present brief descriptions even where the information was incomplete and/or of doubtful utility.

Tutors' and tutees' mathematics grades and mathematics test performance were examined in a post-test pre-test analysis of covariance and tutors were examined for number of failing grades and self-concept.

The effect sizes shown below are based on the differences between corrected post test means divided by the control group's post test standard deviation:

Measure	Tutees	Tutors
Math test	ES= 1.00	ES= 0.99
Math grade	ES= 0.30	ES= 1.25
Number of Failing Grades		ES= 0.48
Self-concept		ES= 0.30

These results indicate that both tutors and tutees benefited from the tutoring. However, this is not generalizable to all participants due to the exclusion of the three dropout pairs from the analysis.

2. Prinz, 1977

In this program seventh grade children tutored fifth grade children twice a week over a period of six months. The emphasis was on school learning, but social activities were included. Officially, group guidance was provided once every two weeks but it appears that attendance was not regular and the tutors were largely autonomous in selection of content.

A large dropout rate was found (over 50%) and the investigator divided tutored children into three categories: 1, immediate dropouts (less than three meetings- 24 children); 2, late dropouts (34 children); 3, completions (43 children).

The program took place in the academic year 1976-77 and was set up solely for the purposes of the research. The Master's thesis described here was concerned only with effects on tutees. The effects on tutors were to be examined in a doctoral dissertation which has not yet been completed.

The analyses compared these groups among themselves and with a control group of 49 children (it was not clear whether selection was random or not). The dependent variables included school grades, performance on Math and reading tests, and a large number of self report affective measures. Unfortunately, the large number of statistical tests carried out were poorly organized and described. In most cases we found it impossible to match a described finding and its empirical basis. It appears, though, that for children who completed it, the program improved personal adjustment but not achievement. Early dropouts"partially" improved in achievement and self-

confidence, and late dropouts "worsened" in achievement. Because of the problems mentioned above, we feel less confident in interpreting these findings.

3. Sprinzak, 1976

This is a large scale program run by the Ministry of Education in which high school pupils tutor pupils from grades 7 to grade 10. The main purpose is to improve the academic performance and personal adjustment of both tutees and tutors. The program was initiated in 1971 and in the 1982-1983 academic year about 4000 tutors were working throughout the school system (we were not able to get exact figures from the Ministry).

The data presented and discussed below, were reported by Sprinzak (1976) for the academic year 1972-1973.* Tutors worked with one or two tutees for the entire school year. However, in some cases, tutoring was for a shorter period and in others, the tutoring was in specific study areas. On the average the tutorials lasted about five months. Most tutorials took place in school, after school hours (85%). The remaining were either at the tutor's or tutee's home or in a neighborhood center. Generally there were one or two meetings each week, of one or two hours duration.

Two alternative training frameworks were compared: 1. A 3-week summer camp, (this has since been dropped); 2. Three full-day conferences at the beginning of the school year. In the summer camp framework, tutors were given an extensive program of instruction in language, Math and English, and participated in discussions of tutoring topics. In the framework of the three full-day meetings tutors received similar training but for far fewer hours in each topic, with more emphasis on tutoring problems.

There were no details concerning either the structure of the tutorials or of guidance of tutors. Formally, it was stated that a teacher in the school was to supervise the tutorials, but no details were given. The Ministry of Education reports that workshops are currently held between one and four times a month. Selection of tutors was on the basis of reasonably high achievement in Math, language, and English, and on the basis of being described as "responsible" by their teacher. Also, preference was given to children whose families immigrated from Middle Eastern or North African countries.

For the purposes of the research, tutor candidates who met the requirements were

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* Unless specifically noted, our description of the program in 1972-73 applies to the present day program as well. Sprinzak's analysis included all tutors and tutees participating in 1972-73.

randomly assigned to the experimental or control group. But in addition, there was an unspecified number of tutors in the control group who had been accepted as candidates for the experimental group but who did not participate in the summer camp for unspecified reasons. In general, teachers provided lists of tutee candidates and the investigator assigned randomly to groups. However, according to the investigator, a "non-negligible" number of teachers also assigned children to experimental and control groups.*

The analyses compared 153 tutors with 82 control children and 194 tutees with 138 control children in 25 schools. The dependent variables were:

1. Achievement tests results: Math, English
2. Teachers' grades: Math, English, language
3. Personality and attitude self reports: locus of control, self image, attitudes toward school, educational ambition

The analysis of covariance included three factors: tutoring versus no tutoring; sex of tutee or tutor and type of school (religious versus secular).

In the analysis of tutee results a significant positive effect was found on Math grades but not on Math tests. A significant positive effect was found on English tests but not on English grades. A significant negative effect was found on locus of control and for self image there was a significant interaction between treatment and type of school: the investigator reported no effect in religious schools and a negative effect in secular schools. The report included only a few means and standard deviations, on post tests allowing us to calculate only a few effect sizes: for Math grades ES=.4; for the treatment by type of school interaction on self image: in secular schools ES= -.46, and in religious schools ES= -.02.

In the analyses of tutors' results, the investigator compared those who were in the summer camp with those in the 3-day seminar. Out of 10 hypothesis tests, two (English and attitudes) were found significant. On the basis of this, it was concluded that the summer camp had a greater effect than the seminars.

In comparing tutors and their controls, there were no significant main effects but there was a significant school system by treatment interaction effect on locus of control. The investigator reported a slight positive effect in religious schools and a negative effect in secular schools. From our calculations, we found that in religious schools ES= +.09 and in secular schools ES= -.27.

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* A pre-test comparison of the experimental and control groups on 9 variables led to 2 significant differences.

Unfortunately, for non-significant effects no data was presented which would have allowed us to compute effect sizes. From the available data we conclude that there were mixed results on achievement. On the affective measures there were signs of a negative effect in secular schools, with little or no effect in religious schools.

4. Paynton, 1981

This study evaluated a tutoring project in a Jerusalem neighborhood center, serving a lower-middle class population. The project was initiated by the National Insurance Institute in 1980 and was still in operation in 1983. Twenty-four tutor-tutee pairs participated in the project during the period of the evaluation. The tutors were in the ninth to eleventh grades and the tutees were in the first to third grades.

The goal of the project was to improve school socialization and motivation to learn on the part of both tutees and tutors. Tutors were found through advertisements in local newspapers (the 24 tutors were selected from 35 respondents), and the tutees were selected by their teachers. The tutors were evenly divided by sex; the tutees were mainly male.

The tutors participated in seven orientation meetings which focused on problems in social interaction and the use of games. During the tutoring period, group and individual guidance were provided occasionally. An attempt was made to have the tutors plan tutorial sessions, but according to the evaluator this met with only "partial success".

In a pre-post design using teachers' ratings, the program participants were compared with their classmates on five school participation variables, two class sociometric variables and achievement. No systematic effects were found. Standard deviations were not reported, and this prevented the calculation of effect sizes.

5. Oseasohn, in press

This study examined tutoring of elementary school children by teachers' college students. The program was obligatory for second year students and combined field work and theoretical studies (lectures and supervision). The research was carried out in 1980-81 during the third year of the program's operation. The college has continued with the program and similar tutoring activities have been adopted by many teachers' colleges around Israel.

The student teachers (tutors) provided social and scholastic assistance to primary school students (tutees). The meetings between the tutors and tutees were held twice

a week after school hours, usually in the homes of the tutees.

The theoretical aspects of tutoring were introduced through a weekly seminar of lectures related to tutoring. This seminar also constituted a framework for group supervision of the tutors. A staff member of the college was responsible for the coordination of the tutoring program and for providing group and individual supervision of the tutors; at times individual guidance was provided during a tutoring session at the child's home. The coordinator was paid according to time devoted to group and individual supervision, while the tutors received a grant for the entire year in addition to refunds on travel expenses.

The tutors were required to complete a number of forms:

1. "Tutoring timetable" - i.e. days, time and place of the meetings.
2. "Diary" in which the tutor described each meeting after its completion.
3. "Monthly Summary" - A monthly description of the tutor's work with the tutee and of his preparation for the coming month's activities.
4. "Expense Account"

After each meeting with the tutor and tutee the coordinator wrote a report on his impressions. This was used mainly as an aid for the development of the tutor.

The main purpose of the research was to describe and evaluate the tutoring process. A subsidiary aim was to evaluate the effect of the program on the children's school achievements in mathematics which was the main focus of the tutoring.

1. Selection of tutees The tutees were chosen by the class teachers in consultation with the school social worker or counselor. The selection criteria were:

a) Children who had difficulties in learning but were not retarded or subject to other serious problems (children with at least an average potential).

b) Children who at the time of the research were not in a special educational framework (such as remedial classes, etc.). The final decision was made by the coordinator after a personal interview with each of the candidates.

On the basis of these criteria, 34 third and fourth grade candidates in two schools were chosen by their teachers. Within each of the five participating classes the candidates were blocked into two homogeneous groups according to past achievement. The block size varied from class to class but in all cases the children in each block were assigned randomly to the experimental or control groups. In all, 20 children were assigned tutors and 14 served as controls.

2. Selection of tutors Even though the tutoring course was mandatory for all second year students, only 18 out of 28 actually participated. Some were exempt for various reasons and some had already fulfilled their tutoring requirement. Two additional tutors were drawn from first and third year students. The tutors and tutees were paired by the coordinator on the basis of his experience with them and of available information on them.

3. Procedure The focus of the research was on six tutors who volunteered and were recommended by the program coordinator to provide detailed information on the tutoring process. (They were paid for the extra time devoted).

The description of the process was based on:

a. Open interviews with each of the tutors over the year.

b. Observations at tutorial meetings in the child's home.

c. Examinations of each tutor's diary at the end of the year.

d. Questionnaire data collected from tutors at the end of the year.

e. Interviews with the program-director.

f. Observations of the course seminar.

Three sets of achievement related behavior measures were obtained:

a. Objective test performance: one test administered before entering the tutoring program, one toward the middle and one towards the end of the school year.

b. Report card grades on mathematics: previous year's grades and grades at the end of the year in which the program was operated.

c. Report card grades on homework preparation and class participation (here again, both for the previous year and for the end of the program year).

4. Main Findings

a. There was tremendous variation in number of meetings and amount of time spent in tutoring.

b. The tutors were largely autonomous in determining the exact content of their meetings with the child. Among school subjects, most time was spent on mathematics, but the tutors were under pressure from parents to help with homework in all areas.

c. The general impression was that the supervision was not fully implemented. While a large number of group seminars were held (25 over the year) on the average only half of the participating tutors attended. Also, supervision of tutors at the child's home was irregular and occurred on average about once every six weeks. Both the coordinator and the tutors expressed dissatisfaction with the extent of supervision.

d. Few significant relationships were established between the tutors and relevant school personnel-teachers, counselors, or social workers.

e. In spite of the fact that the tutoring was conducted in the framework of a course and that tutors were paid, dropout was relatively high: of the original 18 tutors in the course, 5 dropped out of whom 3 were replaced. The investigator suggested some measures for reducing dropout, including more careful selection of children and making the course elective.

f. Because of the relatively small sample size, problems in test administration and missing information, the investigator did not place much emphasis on the analysis of outcome measures. Using pre and post measures of arithmetic performance based on standard tests and teachers' ratings, the effect size= -.19. Similarly, the effect size for class and homework participation was +.17.

6. Osterweil and Feingold, 1981

This program was carried out in the framework of an undergraduate psychology course aimed at helping student volunteers working in schools. Teams of three to five students worked with groups of eight to ten children. The program and the research were carried out in three successive years from 1975-1978. Each year, 15-17 students were selected from about 40 applicants. The students were told, "to use your own resources (affective reactions, special interests, talents, hobbies, etc.") in order to build a relationship that will prove to be a rewarding experience both for the children and for yourselves." They met with the children once a week in school after school hours for eight months. Children were recommended by teachers according to criteria set by the investigators - children who could benefit from the intervention and who did not need professional help.

The program was characterized by a strong framework of supervision and guidance. Each team of students had three meetings per week: 1) planning and preparation of the next meeting with the children; 2) discussion of specific problems with the course assistant; 3) discussion of issues with the course teacher and assistant.

For the purposes of the research, teachers defined two matched groups of children, one of which was randomly assigned to the tutoring program. The two groups were compared on teacher's ratings, (second year only) human figure drawing (third year only) and class sociometric status (third year only). In the analysis of teacher's ratings there was no direct comparison of the experimental and control groups. Also, only experimental group data were presented. We, therefore, do not relate to this set of variables. Two psychologists compared the before and after drawings of each

child (they did not know which was which and whether the child was tutored or not). For the results of the figure drawing test both psychologists indicated that tutored children were more likely to have changed positively than were control children. (psychologist A: 59% versus 43%; psychologist B: 72% versus 50%). The investigation of sociometric status indicated that tutored children improved more than the controls in terms of being rejected less often (63% versus 45%).

7. Eisenberg, Fresko, Carmeli, 1980 1982.

PERACH is by far the largest and most documented tutoring program in Israel. In the 1981-82 academic year, about 6000 university, yeshiva and teachers' college students were tutoring children in disadvantaged and integrated schools. The overriding philosophy of the program is that almost all university-level students can be effective tutors without guidance. As a result there is no clear structure and the tutor is free to choose his own direction and means.

PERACH was initiated in 1972 as an experimental pilot project in which approximately 50 students and staff members at the Weizmann Institute in Rehovot tutored local disadvantaged children on a voluntary basis. In 1975 the project was expanded to include students from The Hebrew University in Jerusalem working with children in Beit Shemesh (near-by development town). As a result of these trial projects, a decision was made to operate the program on a national basis and in 1976-77, PERACH opened up local management offices in each of the seven major universities (with an additional local management office for the Hebrew University's Rehovot-based School of Agriculture). During that year, approximately 900 students participated in the project. Since then, PERACH has grown more or less consistently every year. In the current 1982-83 academic year, 8000 students are participating in the project.* The tutors are reimbursed with a scholarship equal in value to 60% of the university tuition, which they receive in three installments during the year.

PERACH tutors are required to meet their children twice weekly for at least two hours per session. Days, hours and locations of meetings are determined by the child and tutor. Generally, an attempt is made to hold some meetings at the child's home, some at the tutor's home, and others in "neutral" locations (university campus, museums, outdoors, etc.). The full scholarship is awarded to students who have worked continuously for seven full months (56 sessions with the child), with certain allowances made for meetings cancelled due to illness, army reserve service,etc.

*Approximately two-thirds of these are university students, while the others study at other institutions of higher learning (teachers' seminars, art and music academies, yeshivas, etc.). The majority of these are seminar students, and their participation in PERACH is uaually part of more structured courses including group and personal guidance.

The effects of this program were investigated in a series of three studies. In the first study (1977-78) 466 tutored children were compared with 334 control children on measures of Math, English, general knowledge, and attitudes. The control children were selected by PERACH school coordinators to match the tutored children according to selection criteria. In a pre-post design experimental and control children were compared using analysis of covariance. Corrected post-test means were not presented so we estimated effect sizes by subtracting pre-test d-scores from post-test d-scores. These are the differences in experimental and control group means divided by the control group's standard deviation.

In the second study (1978-79) 243 children were compared to 193 control children in similar schools who were selected in a simulated procedure designed to match that of PERACH. In the third study 59 tutored children were compared with 86 control children. In this design children in the same class were blocked according to their teacher's ratings on achievement and were assigned randomly to a tutoring or non-tutoring group. This is a stronger design because of the random assignment and because it compares children in the same class. An analysis of covariance was carried out on post-test scores, with pre-test scores as covariates. Corrected means were presented.

We present the results for achievement and "affective" measures (self report) in Tables 6 and 7. In the 1977-78 study most ES achievement measures were negative. In the 1978-79 study all the ES achievement measures were negative. In the 1980-82 study all the ES achievement measures were positive. The investigators were cautious in their conclusions. They were inclined to accept the findings of the third study but stated that the results of the first two studies should not be ignored.

In the third study there was a significant number of dropouts (12.5% in the third grade sample and 24.4% in the sixth grade sample). The investigators did not include the dropouts in the analysis but did include their matched controls. Therefore, there may be an element of bias in favor of the experimental group. At the very least the results are not generalizable to the entire set of tutored children.

Overall, the effect sizes for the affective measures were quite small: almost half were less than 0.1. The only consistent and relatively strong result was for reported reading of books. The tutored children improved their standing relative to the control children in all three samples for which data were available (ES=.32 in 1978-79; .97 in 1980-82, Grade 3; .22 in 1980-82, Grade 6). Particularly discouraging were the results for the self concept measures, especially those for

school self concept. In a number of discussions with the authors, PERACH staff generally expressed the view that the program's primary impact would be on self concept and that this would then affect achievement. This was clearly not the case.

Our interpretation is that at best the results were mixed and one can conclude that the tutoring program had no clear effect on achievement or on a broad range of self concept, attitudinal and school participation variables.

Table 6. Achievement Test Effect Sizes for Three Samples

de	1977-78 Arith.	Reading	English	Bible	General Knowledge	1978-79 Arith.	Reading	English	1980-82 Arith.	Reading
	-	-	-	-	-	-	-	-	0.34	0.16
	-	-	-	-	-	-	-	-	-	-
	-0.47	-0.16	-	-0.36	-	-0.35	-0.47	-	-	-
	0.08	0.27	-0.05	-0.01	-	-0.07	-0.65	-0.28	0.44	0.34
	0.29	-0.06	0.19	-	0.27	-0.02	-0.78	-0.44	-	-
	-0.09	-0.15	(-2.98)*	0.58	0.36	-	-	-	-	-
	-0.46	-0.10	0.22	0.18	-0.37	-	-	-	-	-
	-0.13	-0.04	.12	0.10	0.09	-0.15	-0.63	-0.36	0.39	0.25
	.33	.18	.15	.39	.40	.18	.16	.11	.07	.13

*We are suspicious of this outlier and have not included it in our summaries.

Table 7. Effect sizes for "Affective" Measures*

	1977-78	1978-79	1980-82	
			Grade 3	Grade 6
School self concept	-.02	+.01	-.15	-.16
General self concept	+.04	+.28		
Social self concept	-.06	+.17		
Family self concept	-.06	+.04		
Self concept - non-academic school subjects	+.12	+.05		
Academic satisf.	+.02	+.21	-	+.09
High School Matriculation Aspirations	-.04	-.10		
General Aspirations	+.01	+ 02		
Extracurricular activity	+.07	-.24		
Ethnic Identification	-.07	+.17		
Patriotism	-.24	+.01		
Classroom Participation	-	+.21	+.11	-.48
Homework	-	+.06	+.38	-.14
Feeling of popularity	-	+.15	-.45	+.14
Reading of books	-	+.32	+.97	+.22
Av.	-.02	.09	.17	-.06
SD	.09	.15	.54	.26

* Three measures obtained only in the 1980-82 studies are not included here.

8. Davis, Snapiri, Golan, and Zlotnick, (in press)

This study investigated three programs in which university students tutored third, fourth, and fifth grade children over a period of two years. Two of the programs emphasized exceptionally strong guidance and supervision as an approximation to the 'optimal' program defined by Davis (1981). Originally one framework of guided tutoring was planned, but logistical problems led to its division in the first year into two programs. Program 'A' was administered in the framework of an undergraduate course in education. Tutors in Program 'B' were paid university students. In both cases an hour per week of individual guidance was provided for each tutor. In addition tutors participated in group discussions (extensive, in Program 'A' and somewhat less so in Program 'B'). In Program 'A' each tutor was assigned one child, while in Program 'B' some of the tutors worked individually with each of two children.

The emphases of the programs were on improving the child's performance in reading and arithmetic. Each child's scholastic problems were determined and tailored programs were designed to deal with them. For example, each tutor taped his child in a reading diagnostic test developed by the project's reading consultant. This was used by the tutor, his supervisor, and the reading consultant to determine the direction of the tutorial in this area. It should be noted that the initiative in each case lay largely in the tutor's hands. The third program, PERACH, was described in the previous section. Within this framework, tutors determine the direction and content of activities with little or no formal guidance.

In all three programs the tutors and tutees generally met twice a week for 1 1/2 to 2 hours during the period from November to June. In all, 47 children from the two guided tutoring frameworks and 19 children from the PERACH program were examined.

A. Examination of Program Effects. For the purpose of estimating the effects of Program 'A' and PERACH, triplets of tutee candidates in the same class were matched on previous achievement and were assigned to one of the tutorial groups or to a no-tutoring control group. For the purpose of estimating the effects of Program 'B', pairs of children matched on previous achievement were assigned to the tutorial or to a no-tutoring control group.

Measures of performance were based on arithmetic and reading tests geared to the curriculum of the class and its level at the time of test administration. Eight reading and arithmetic tests were administered over the period November 1980-June 1982. In addition, teachers' evaluations of each child's performance in

mathematics and reading were obtained from report cards and from questionnaires designed by the investigators (again, eight times). Also gathered were data on the child's motivation as reflected by teachers' ratings of class and homework participation.

Data comprising test scores were defined as "objective" data, while teachers' ratings on questionnaires and report cards were defined as "subjective." For each test, and/or rating, the data were transformed into Z scores, representing the relative status of each child in his own class. When more than one Z score was available in a specific subject for a single point in time, the means of these scores were calculated. Generally, for each of the eight time periods there were five basic scores: objective reading (RO); objective mathematics (MO); subjective reading (RS); subjective mathematics (MS) and motivation (MOT). In all, a maximum of 39 data points were obtained for each child in reading, mathematics and motivation over the two year period (most children provided the maximum or close to it).

In order to arrive at an overall achievement score for each time period, the investigators computed the mean of the four achievement scores listed above. This overall mean was seen as the principal dependent variable, as it represented general achievement and was based on the maximum amount of data.

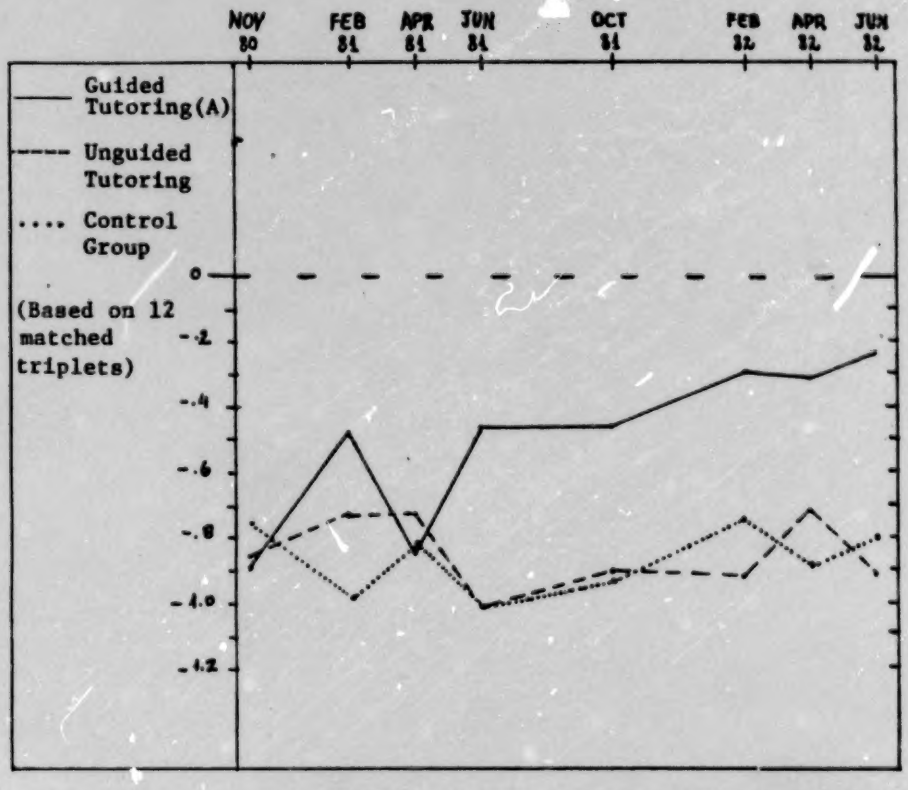
The analyses were based largely on difference scores between matched children. Comparisons of school performance were carried out for:

1. Children of guided tutors in Program 'A' versus children of unguided tutors (PERACH).
2. Children of unguided (PERACH) tutors versus control children.
3. Children of guided tutors in Program 'A' versus control children.
4. Children of guided tutors in Program 'B' versus control children.

Comparisons one to three were to be based on matched triplets randomly assigned to Program 'A', PERACH, or to the no-tutoring control group. Because of the difficulties in defining matched triplets within classes, most randomization could be carried out for pairs only. The investigators decided that the most important comparison was of Program 'A' versus PERACH (guided versus unguided tutoring). Accordingly, this comparison was largely based on random assignment. The investigators later added control children to round out the triplets. This provided a largely quasi-experimental comparison of each of the tutored groups with children who were not tutored (comparisons two and three). In comparison four, assignment of children to Program 'B' or the control group was generally random (no comparison with PERACH was possible since PERACH did not allow their tutors to work in the same classes as paid tutors).

In each of the four comparisons the randomized and non-randomized pairs were analyzed separately. The investigators also presented separate analyses for: (A) tutorials which were maintained for the full two-year period and for those which were not; (B) tutorials with minimal missing data and for those with significant missing data. We do not present all the detailed analyses here, but note that the investigators viewed the overall analysis as providing the most general description of program effects. This is presented in Figure 1. In Figure 2 we present results for cases in which tutoring was maintained for the entire period.

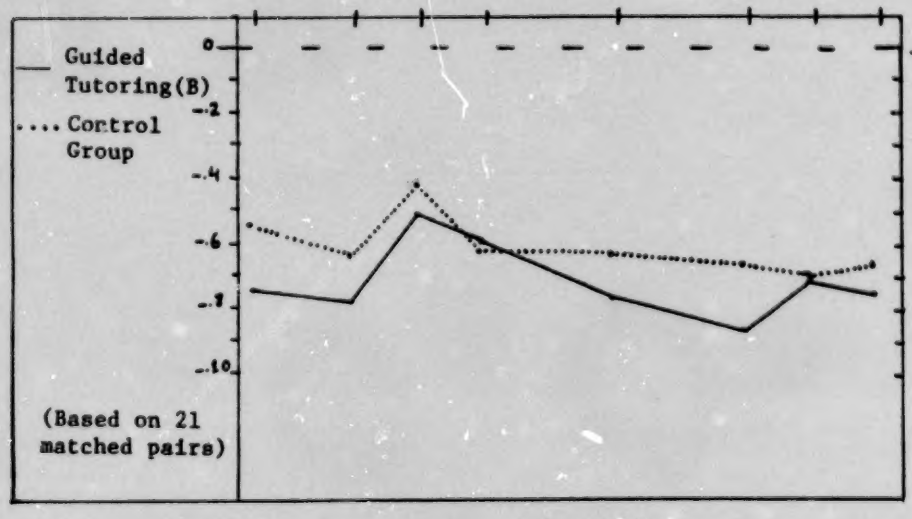
FIGURE 1.A Average achievement (in Z-scores relative to each child's class) as a function of time for three groups : Children of Guided Tutors (A); Children of Unguided Tutors; Control Children.



Effect Sizes (And S.D. Residuals)

	1st Yr.	Summer	2nd Yr.	Overall
——	.30 (.63)	.09	.21 (.51)	.60
---	-.14 (.62)	.01	.05 (.62)	-.08
...	-.21 (.73)	.09	.11 (.68)	-.01

FIGURE 1.B Average achievement (in Z-scores relative to each child's class) as a function of time for two groups: Children of Guided Tutors (B); Control Children.



	1st Yr.	Summer	2nd Yr.	Overall
——	.20 (.68)	-.24	.04 (.58)	+.00
...	-.01 (.59)	-.08	-.05 (.55)	-.14

FIGURE 2.A Average achievement (in Z-scores relative to each child's class) as a function of time for three groups: Children of Guided Tutors (A); Children of Unguided Tutors; Control Children; (Full Term Tutorials only).

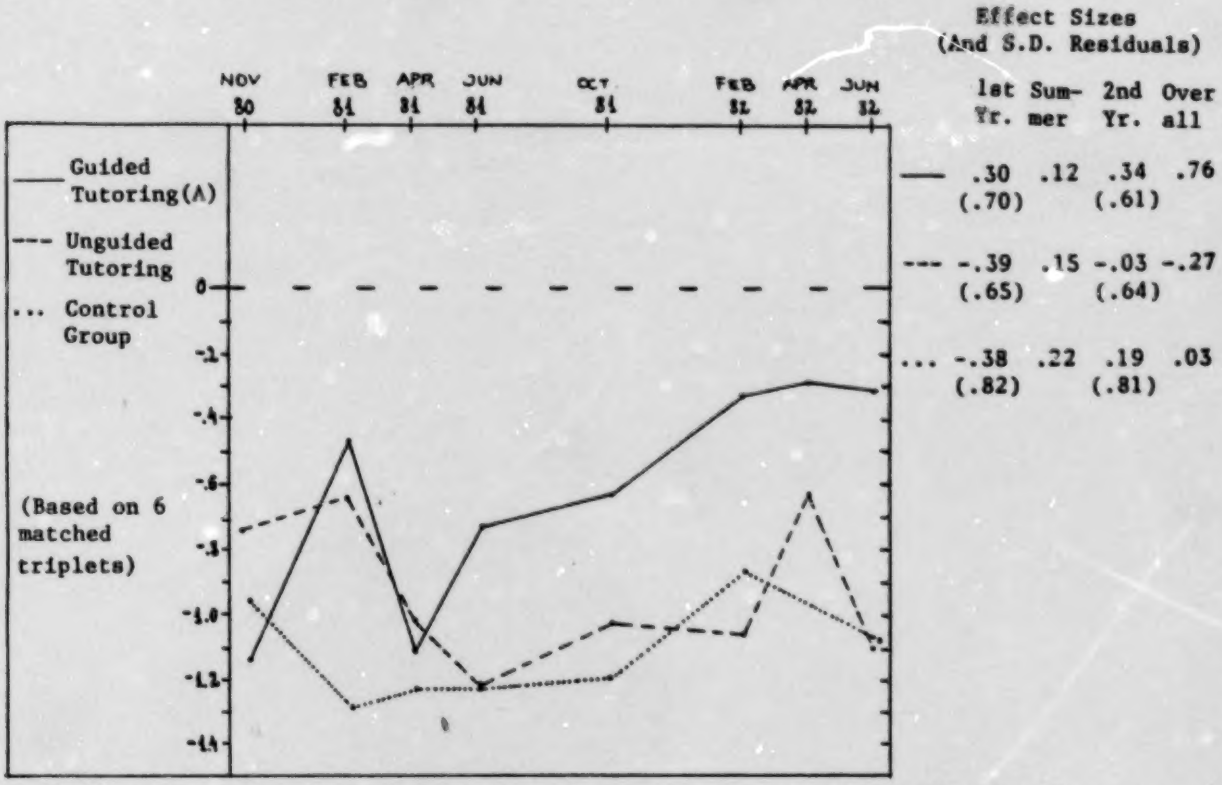
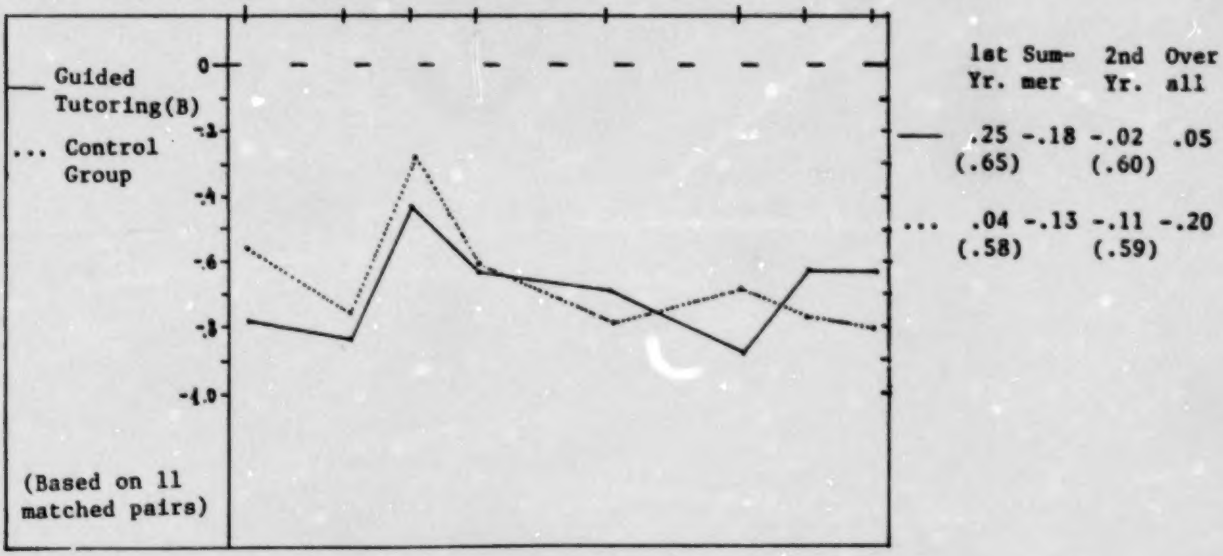


FIGURE 2.B Average achievement (in Z-scores relative to each child's class) as a function of time for two groups: Children of Guided Tutors (B); Control Children; (Full Term Tutorials Only)



In Figure 1A we present three curves of general achievement (average Z scores) as a function of time (November 1980 to June 1982). The data are based on twelve matched triplets*. It can be seen that the curve for children of guided tutors diverged from those for children of unguided tutors and for children who were not tutored. In November 1980 the general achievement of children of guided tutors was slightly lower than those of children in the other two groups. In June 1982 the performance of these children was well above those of children in the other two groups.

To the right of the graph we present effect size measures. These were obtained for each curve in the following manner: in each of the two academic years a straight-line regression was fitted to the data. The difference in predicted performance for June 1981 and November 1980 was defined as the first-year effect. The corresponding difference for June 1982 and October 1981 was defined as the second-year effect, and the difference in predicted scores for October 1981 and June 1981 was defined as the summer effect. Finally, the difference of the predicted scores for June 1982 and November 1980 was defined as the overall or two-year effect. This latter measure is the sum of the first-year, summer, and second-year effects. The investigators related mainly to the overall or two-year effect and to the comparison of the first-year and second-year effects. The authors related to the summer effect as merely a "filler" to arrive at the two-year effect after calculating the first-year and second-year effects. Its interpretation is difficult in any case since some tutorials continued into the summer for various periods and most continued 2-3 weeks after the test administration in early June.

It can be seen that the overall effect for guided tutoring was .6 in terms of standard deviation units of the entire class. We view this as much larger than the corresponding results of -.08 for unguided tutoring and -.01 for no tutoring. For direct comparison of any pair of the three groups the corresponding effect sizes can be subtracted. Thus, the two year effect size for guided tutoring versus no-tutoring was .6 - (-.01) = .61; for unguided tutoring versus no-tutoring it was -.08 - (-.01) = -.07; and for guided versus unguided tutoring it was .6 - (-.08) = .68.

We turn now to the guidance-pay framework. In Figure 1B we show two curves of general achievement as a function of time for 21 matched pairs. It can be

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* The main presentation in the report was based on matched pairs. The sample size for matched triplets is lower than for matched pairs since it was not always possible to create a matched triplet. There were no appreciable differences between the analyses of matched pairs or triplets.

seen that in November 1980 the performance of children in the pay-guidance framework was below that of their matched controls. During the first year the tutored children's achievement approached that of the control children (relative effect size = .20 - (-.01) = .21). However, this was followed by a worsening of the tutored children relative to the control children so that the two year relative effect was only .14 (.00 - (-.14)).

The curves in Figure 1 include children who for various reasons did not continue in the program for the entire period. In general 'drop-out' or non-completion of educational programs is selective; that is, overrepresentation of troublesome children and/or tutors is likely. The investigators therefore viewed the results in Figure 1 as providing a conservative estimate of program effects. In Figure 2 we present the results for those children who completed two years of tutoring. It can be seen that for both guided tutoring groups, performance relative to the control groups improved. On the other hand, performance of the children of unguided tutors relative to the control group worsened.

It can be seen in Figure 2 that relative effect sizes were larger in the first year of tutoring.

In addition to the analysis of general achievement, five basic subject areas were investigated: objective reading, objective mathematics, subjective reading, subjective mathematics, and motivation. In all four comparisons (Program A (A)-PERACH (P), PERACH (P)-control (C), Program A (A)-control (C) and Program B (B)-control (C)) the direction of the effect was consistent across subject areas (positive for A-P, A-C and B-C, and negative for P-C).

Differences in effect sizes for reading versus mathematics, objective versus subjective data and achievement results versus motivation were also related to. The investigators hypothesized that, for guided tutoring, the results in reading would surpass those in mathematics (in view of the emphasis placed on reading in Programs A and B). This hypothesis held in the case of objective tests, where effect sizes for programs with guidance were consistently higher for reading than for mathematics. No clear cut advantage was found for reading over mathematics in the case of PERACH. This finding was to be expected as, for the most part, there is no particular focus on reading versus mathematics in this program.

Teacher evaluations did not reveal consistent differences between mathematics and reading. This finding may be indicative of a 'halo effect' associated with subjective evaluations. The investigators predicted that in comparisons among objective tests, subjective evaluations of achievement and motivation, tutoring effects would be most strongly felt in motivation for learning (as

measured by class participation and homework preparation); less so in subjective evaluations of achievement; and even less so in achievement scores on objective tests. This prediction was based on the expectation that tutee self-confidence would increase as a result of his tackling specific mathematics and reading problems with the tutor and that this would in turn bring about an increase in classroom participation and homework preparation. Strong, immediate effects on performance in objective tests were not to be expected, as in this situation the child had to perform without external support from either tutor or teacher.

The results were not in keeping with this prediction: generally, effects on motivation were no greater than those found for objective and subjective measures of achievement. Also, no consistent results were found regarding effect sizes for objective and subjective measures of achievement.

In a series of additional analyses performed on data from frameworks with guidance, greater effects were found for aggressive versus withdrawn children; greater effects were found for children whose tutors' supervisors were didactically oriented versus those with a psychological-counseling orientation; no clear differences were found between children in tutorials defined as 'exemplary' and those defined as 'difficult.'

B. Examination of process. A major focus of this study was the examination and description of the tutoring process. Using a participant-observer model, the investigators, with the help of tutors and supervisors, built up a collection of 45 case studies. These were viewed as a resource and as the basis for a description of tutoring experiences and conditions. We present one of these cases here.

A Case Study in Individualized Tutoring

(1) Major characteristics of the case.

(a) A difficult child's behavior was often rejecting, annoying, and quite difficult to deal with.

(b) Growing trust in the tutor's acceptance of her helped the child overcome the need to prove herself and enabled her to relate to the tutor more sincerely.

(c) The child's emotional problems (primary or secondary) hindered remedial work in reading and arithmetic

(d) Counselling played an important role in facilitating the relationship between the tutor and the child.

(2) Background

(a) Reason for referral: X was a pupil in the fourth grade who was referred because of her extremely weak performance in school.

(b) The child and family: X was the ninth of ten children some of whom were married and living away from home. The father worked as an unskilled laborer, and the mother was a housewife. The family lived in a 4-room apartment in one of Jerusalem's poorest neighborhoods. Their house was described as being clean and tidy, with a study-corner for the child. X's parents and family perceived her as being "dense", and mocked her when she did not know something or made a mistake. She was described by her mother as being obstinate, stubborn and disobedient.

(c) The child in her neighborhood: From the outset, she was described as being socially unaccepted, introverted and mocked. Observations made on a number of social occasions (the opening of a neighborhood club; PERACH's Chanukah party, her birthday) showed that she tended to be domineering and spiteful with those children she was not afraid of. In her "on and off" relationship with her best friend, one could recognize a strong desire on her part to take advantage of her friend, and to dominate and make fun of her.

(d) The child in school: At the beginning of the year and before the tutoring, her teacher described her as being very weak in school work, particularly in reading and arithmetic, and as lacking perseverance. In addition, the child was described as having a low social status vis-a-vis her classroom peers. She was very disorganized, and according to the teacher did not even have workbooks, but rather only pieces of paper. The child invited the tutor to her classroon, where she seemed to be in a daze and to be completely cut off from what was going on in class (day dreaming and looking around). Occasionally, she would respond with irrelevant answers, which according to the tutor's report, (and the teacher's verbal report) were sometimes totally out of context. For example, she described a microscope observation of a mandarin peel by saying (late December, 1980): "I saw a cave with walls, and I was afraid that I would fall in." This description caused her to be mocked by her classmates.

(3) Description of the tutoring process

(a) The tutorial sessions: During the year (between December and the end of June) 53 tutorial sessions took place. (Two additional sessions took place at the end of November). Three meetings were cancelled by the tutor, who notified the child ahead of time, and four by the child without any previous notification. There was a two and a half week break in April, when the tutor travelled abroad. These meetings were made up by the tutor before and after the vacation period. The child's cancellations were concentrated in the period following this break, and toward the end of the school year.

The usual meeting place was the child's home. After the first month, the child and tutor had their own room in the house, which they could lock so as not to be disturbed. Meetings outside the home took place at the zoo, at the university swimming pool, in a games room, and at the movies. Toward the end of the year (in June) a number of consecutive meetings were held at the tutor's home.

(b) Allocation of tutorial time:

Table 8. Allocation of Time

Period Area of Activity	A First Ten weeks	B Second Ten weeks	C Third Ten weeks	Total % Time Invested	Total Hours of Activity
Total Hours of Activity	43	35	23	100%	101
Arithmetic	4%	3%	7%	4%	5
Hebrew	17%	35%	16%	23%	23
Other Schoolwork	17%	6%	13%	13%	12
Total school work	38%	44%	36%	40%	40
Total Social	62%	56%	64%	60%	61

It can be seen in Table 8 that 101 hours were invested in the tutoring. This was much higher than the general average for both guided tutoring programs (85 hrs.) The small number of hours in Period C (the last third of the school year) reflects the many sessions which were cancelled by the child. Most of the instructional work in reading (the key focus) took place in Period B which was quiet and productive according to both the supervisor and the tutor. This learning activity followed a diagnostic reading test and was based upon it. The total amount of time invested in reading (about 24 hours) was much higher than average (16 hours). In comparison, the time invested in arithmetic (about 4 hours), was much lower than average (8 hours).

From the table we can see a numerical indication of: (a) The fluctuations in the child's motivation, which determined how much time would be invested in which

activity; (b) The primary goals of the work: - concentration on language and reading, and to a lesser extent, on arithmetic.

(c) The tutor-tutee relationship. Except for those at the beginning, most meetings were marked by the child's evasive behavior and tension. She tended to "bore" quickly even when she had initiated school-related activities, and would escape in various ways - for example, by suddenly performing pantomime or changing the subject. Similarly, she made attempts (particularly in April) to frustrate and belittle the tutor, and to prove her lack of ability to help, by playing tricks on her, or by asking her to bring certain books or games, and then complaining that she meant something else.

The tutoring period can be divided into three stages, based on the central problems that arose in the meetings: In Stage One the relationship between the tutor and the child was marked by a strong desire on the part of the child to be liked by the tutor. In the first meetings, she gave her gifts, and even declared to the tutor, "I'm O.K." Clearly, her anxiety over the possibility that she would not be liked and accepted as she was, caused her to try to be "good". The child objected to the tutor's leaving at the end of a meeting, and demanded that she come three times a week, if not more. In January there was even a short period in which the relationship became very intense, and the tutor and child would embrace and kiss at the end of each meeting. The supervisor indicated that such behavior could mislead the child as to the tutor's role, and it was discontinued. It was during this period that the child expressed a desire to have the tutor by her side in the classroom, and invited her to visit her at school. This was pre-arranged with the teacher, and the visit took place in early February.

Exchanges of gifts between "X" and the tutor, and the family and the tutor, aroused a lack of certainty in the tutor who sought to establish a clearer definition of her role in this relationship. Questions concerning when to give or receive presents of money arose a number of times. These situations exemplified the tutor's ambivalent attitude: on the one hand she wanted to give spontaneously, and on the other hand she feared misinterpretation of this spontaneity by the child and her family. Toward the end of the first period, there were no more problems in this respect, and the tutor was able to give or not to give, to receive or not to receive without any special ambivalence. During this stage, the child and tutor were able to perform some school-related activity, despite sporadic expressions of anxiety and unrest over the issue of learning.

The second Stage developed gradually out of the first. It was hinted at in a few earlier sessions in which the atmosphere was unfavorable and tension was sensed between the child and tutor. This occurred particularly when they were involved in any school-related competitive activity, and gradually, these highly-charged meetings became more frequent. This process occurred simultaneously with the child's allowing herself to become more open. For example, she wrote in a story to her tutor: "I went to the park and they beat me up, I went to school and they beat me up, I walked in the neighborhood and they beat me up, I went to the Army and they killed me." By March, her resistance to schoolwork had grown to such a degree that it became almost impossible to engage in any joint learning activity. She would attempt to "trick" the tutor, to mock her or to give her orders. Before the tutor's trip abroad, the child pleaded: "Write me a few letters every day!" The stormy period reached a climax after the tutor's return from abroad, in the period between May and the beginning of June. During this period, the child would 'forget' to come to a number of sessions, and

would leave the tutor waiting for her in the heat of the day at the entrance to the neighborhood. "X" would "confuse" either the meeting place, or the hour they had set. When a meeting was held, the atmosphere was unpleasant.

The scenario during this period was one of a type of power struggle in which a child, feeling weak and helpless, tried to see the extent to which she could dictate to the tutor, mock her and degrade her. Her behavior was such that it became very difficult not to be drawn into conflict with her, and this subject was discussed frequently in the supervisory sessions.

The third Stage was much more relaxed. The change came after a supervision session at the end of May, in which the power struggle was discussed again. The thought arose that perhaps the child was experiencing anxiety over the coming separation from the tutor. A frank discussion of the difficulties and frustrations in tutoring this child brought the tutor to the decision to continue tutoring her for an additional year. Following this, the tutor had a long conversation with "X". The tutor spoke to her of her restlessness,connected this with her anxiety over the expected separation, and announced that she would continue to tutor her next year. "X" became demonstrably more relaxed, and the end of the year was characterized by the renewed capacity of finding enjoyable activities for the two of them. Despite this, the child's avoidance of studies continued.

(d) Tutor-family interaction. In the beginning the tutor was occupied with defining and establishing her role in terms of her relationship to the family. In December, many of the tutoring sessions were disturbed by the interference of siblings, and by their attempts to take part in the meetings. Eventually, the tutor was able to arrange to have a separate room for the child and herself, that could be locked to eliminate the disturbances. In general, the family was supportive of the tutoring.

(e) Tutor-school interaction. As mentioned above, "X" invited the tutor to visit her in the classroom. This gave the tutor an opportunity to gain insight into the child's classroom behavior. The tutor also maintained constant contact with the teacher, informing her of her study plans with "X", and learning about "X"'s behavior at school as tutoring progressed.

(f) Diagnosis and decision-making in reading. A recorded reading diagnosis which was made at the end of December showed that "X"'s reading was rapid, full of mistakes, and lacked any self-correction. She seemed to read words globally, at a glance, without any analysis and synthesis of their components. Her knowledge of vowels was poor, but was improved after a number of meetings. Through co-operation with the reading advisor, a program was designed which included attempts to foster self-correction, learning to divide sentences into meaningful segments, correction of incorrect words by breaking them into syllables, discovery of story contents, encouragement of questioning the meaning of unfamiliar words, and the experiential use of reading and writing (correspondence, describing events, etc.) As stated previously, the child's emotional difficulties greatly hindered any consistent realization of the program. She did, however, agree to learn a few fixed words (like "now", "brothers", "they", etc). They were checked in a number of dictations, and it was ascertained that she had learned them. A letter that she wrote to the tutor at the end of January contained many spelling mistakes and almost consistent inconsistencies in spelling words. For example, the word "always" appeared in three different forms none of which were correct. In retrospect, it seems plausible that the many mistakes were also an expression of "X"'s obstinance and negativism.

(g) Diagnosis and decision-making in arithmetic. As a result of a decision to concentrate on reading difficulties no serious remedial work was planned in arithmetic. It was noticed at the beginning of the year that "X" had difficulty with exercises involving borrowing from the tens (for example, 17-8), with a pronounced lack of understanding of positioning in multi-numerical numbers.

(h) Diagnosis and decision making in other scholastic areas. None were described.

(i) Diagnosis and decision making in the Affective motivational area. From the beginning of the year, the child's weaknesses in the scholastic areas as well as her extreme difficulty in dealing with them were apparent. Her school work was characterized by superficiality in homework preparation; speedy, unchecked, and technically sloppy reading lacking any self-criticism; and consistent attempts to avoid difficult tasks.

While performing school-related tasks or playing games, "X"'s anxiety about failure was conspicuous. In May, for example, game playing was punctuated by many tense comments such as "What do you think, that I'm stupid?" She was never willing to accept defeat as a possible outcome of a game, and preferred to dismantle the game in the middle. It should be noted that nothing in the tutor's behavior should have caused "X" to feel "stupid" or unsuccessful.

In the light of the mocking treatment she was subjected to at home it was assumed initially that "X" was sensitive and vulnerable in terms of her self-image in any thing related to school work, and that this hampered her studies. A decision was made to work with her at slowing down the pace of her reading and reducing her anxiety, mainly by designing very easy assignments, so that the chances of her obtaining positive reinforcements on them would be high. At first this method was successful, but soon "X" became more and more evasive, and clearly and explicitly rejected dealing with any 'unpleasant' area (both scholastic and emotional). It became clear that "X"'s emotional problems were most probably one of the major causes of her failure at school rather than a result of it. At this stage it was decided to avoid whenever possible any power struggles with the child, and to react by reflecting her behavior and lack of desire to approach her studies, while accepting it. In addition to this she was also told that when she wanted, the tutor would be happy to study together with her. The development of the relationship as the year progressed, and her reaction to the tutor's vacation reinforced the conclusion, that the child's emotional difficulties with schoolwork were not just secondary problems, but rather connected with primary emotional problems.

(4) Description of the supervision

(a) Allocation of time: It can be seen in Table 9 that 29 supervisory sessions were held. Two areas - the emotional-social domain and tutor-tutee relations - were particularly outstanding in terms of the frequency in which they were discussed (41% of the meetings). It can be seen that beyond designing the reading work plan problems of reading and writing were not discussed in many sessions (10%). This was apparently a result of the difficulty in implementing the plan.

Table 9. Amount of Supervision Devoted to Various Topics

		No. of meetings (out of 29) in which each topic was mentioned.	Percent of meetings in which the topic was mentioned
1.	Reading and writing	3	10
2.	Arithmetic	0	0
3.	Other school subjects	7	24
4.	Affective-school related matter	3	10
5.	Affective-social issues	12	41
6.	Tutor's personal problems	5	17
7.	Supervisor-tutor relationship	1	3
8.	Tutor-tutee relationship	12	41
9.	Tutor-family relationship	7	24
10.	Tutor-teacher relationship	3	10

(b) The role of supervision: "X" was a child who would fight ferociously to protect her self-esteem, allowing for almost no dealing with painful subjects (be they scholastic or emotional). Her avoidance techniques were very complex, and any attempt on the part of the tutor to prevent her evasion caused great anger and aggressiveness toward the tutor. The role of the supervision in this case was in helping the tutor to understand the child's behavior and its causes, and in giving her support in accepting and understanding her own reactions. The supervisor had no doubt that the difficult and stormy period which began in March was an expression of the child's trust, and proof of a relationship much stronger than indicated by the presents given by the child at the beginning of the year. The tutor, who was exposed to these reactions twice a week, found it much harder to accept them, and it is no wonder that on occasion she had misgivings and doubts over the tutoring. While in February she was sure she would continue tutoring for another year, in May a feeling of disappointment almost brought her to a decision to terminate the tutorials when the year ended. Supervision helped her to understand her feelings, and to reach the decision to continue, despite the difficulties. In addition, the tutor was able to understand the child's behavior as an expression of her distress, and not as a reaction to the tutor. (The development of the tutoring in 1981-82 proved the decision to continue to be a worthwhile one.)

The subjects discussed in supervision were determined by the course of the tutoring. At the beginning of the year, when it was possible to learn together, the supervision was didactic, and focussed on: a) how to teach the child to work more slowly, check herself, speak more slowly; b) an attempt to remind the tutor that she too had to reduce the pace and lower her expectations, even though she naturally wanted to make quick progress and prove to everyone that the girl was not "dense".

As the year progressed and the relationship deepened, the supervisor and the tutor dealt primarily with means of dealing with the child's difficult and irritating behavior. This was approached in a number of ways: developing effective responses to this behavior (e.g. ways of avoiding a power struggle); increasing understanding of the causes of the child's behavior; increasing understanding of the factors which prevented the tutor's being able to react as she would have wished.

In conclusion, the supervision aided an understanding and sensitive tutor in dealing with an annoying, sometimes rejecting, discouraging and all in all quite unhappy child.

(5) Conclusions and Recommendations

Towards the end of the first year it was decided to continue tutoring in 1981-82, with the same tutor, and to combine a therapeutic approach with a learning approach which would include easier tasks. This decision was based on the difficulties observed during the first year and was made possible by the tutor's exceptional psychological perceptiveness. The child's reaction to the tutor's vacation during the summer, showed that a basic trust had been developed during the preceding months, and "X" happily welcomed her when she returned. After the beginning of the school year the teacher told the tutor that this year she seems more relaxed, and displayed a much greater willingness to work in the classroom and to prepare her homework. An attempt was made during the course of the year to include school work in the tutoring activities, but again, the child's co-operation was minimal. In the inter-personal realm, her manipulations of the tutor were less pronounced, and it appeared that she had growing confidence in herself and in the tutor. The tutoring was interrupted during the course of the year due to upheavals in the tutor's life, which required a lengthy and unplanned separation from the child. The child stood up well to this. A diagnosis in arithmetic showed that the child had basic difficulties in grasping arithmetic. There were plans to work in this area but these were not implemented due to the interruption in tutoring.

A description of the analysis of process presented in this study is integrated into the overall discussion in the following section.

IV. SUMMARY AND DISCUSSION

The fifth grade survey and principal's survey indicated that about 5% of Israeli elementary school children were being tutored in 1981. We expect that the 1984 level is at least this high. The popularity of tutoring lies partly in its intuitive appeal; in its use of volunteers and/or low salaried personnel; and in increased community involvement in universities, teachers' colleges and high schools. There is no doubt that its use will increase in the near future. For example, the Ministry of Education is planning to implement a program of compulsory community service for senior high school students, and tutoring of elementary school children will be one of its components. Moreover, it is expected that elementary schools will turn more to use of tutors as budgets for professional support diminish in accordance with current and expected cuts in all government ministries.

The survey of eight evaluation studiss revealed that in most programs guidance was minimal and not obligatory (Prinz, Sprinzak, Paynton, Eisenberg et al.). In one case where guidance was formally provided an in-depth study of process revealed that it was far from being fully implemented (Oseasohn). In three of the studies a strong guidance framework was implemented, but interestingly these were all temporary programs set up solely for the purpose of investigation (Bar-Eli and Raviv; Osterweil and Feingold; Davis et al.). In addition to the evidence of the eight evaluation studies, informal conversations with school personnel revealed that in almost all other Israeli programs, minimal guidance was provided for tutors. In no case was there mention of structured or programmed tutoring in place of guidance. Thus it can be concluded that in Israel the general attitude is that tutors can be left almost completely to their own devices. This is very discouraging in light of the difficulties tutors are likely to face in their contact with disadvantaged children.

For example, the child in the case study described previously was recommended by her teacher and accepted by a PERACH coordinator for tutoring. Had it not been for the research project she would have been assigned an unguided PERACH tutor. On the basis of our discussions with the project supervisors as well as with PERACH coordinators we conclude that most tutors would have stopped tutoring this child in mid-year had there been no support and guidance. Even this particular tutor who was described as having exceptional psychological understanding would not have continued for a second year were it not for

guidance. The problem is that while this was one of the more difficult cases, it was not exceptional. In the investigators' taxonomy of tutoring experiences and conditions this was classified along with 51% of the cases as one with serious problems. It should be noted that assignment to this category was not done lightly: these were cases in which the tutor was required to cope with severe behavioral and/or scholastic difficulties of his tutee. Cases were also assigned to this category when family-related problems greatly hampered the tutoring process and influenced the child's relationship with the tutor (cases in which such difficulties may have existed but did not seriously affect the tutoring were not included in this category).

In Table 10 we present the percent of cases in the Davis et al. study which were characterized by child and family-related factors which threatened the maintenance of a satisfactory tutoring relationship. Table 10 illustrates the very wide variety of potentially problematic situations faced by tutors in their tutoring experiences. The severity of these problems, their nature and the manner in which they affect (or do not affect) the tutoring process differed from case to case, but it was clear that these 'risk factors' were highly prevalent. Only 22% of all cases did not appear in any of the categories describing potentially problematic tutee behaviors and characteristics, and only 20% did not fall into any of the categories related to family problems.

A closer look at tutee-related descriptors reveals that about 55% of the children stood out on either side of an introvertedness/extrovertedness continuum: 28% were judged as being withdrawn and/or apathetic and 27% as manipulative and/or aggressive. Furthermore, 60% of the children exhibited at least one behavior which was liable to interfere with attempts to engage in learning activities (categories 6 to 11 in the Table). Even in the absence of tutee-related problems, conditions in childrens' homes were often not conducive to studying together. Since tutoring sessions took place after school hours, the tutorial process was particularly vulnerable to the influences of the home situation. In view of this fact, the high incidence of severe family problems is of particular concern.

Table 10. Factors which are a Potential Threat to the Tutoring Process

Tutee Behavior and Characteristics

	Percent	Frequency (N=45)
1. Introverted, non-communicative behavior	22%	10
2. Anxiety: tension and expressi n of fear	24%	11
3. Apathy or lack of initiative	6%	3
4. Manipulativeness in inter-personal relationships and/or aggressiveness	27%	12
5. Resistance to tutoring from the beginning	9%	4
Cases which do not appear in Categories 1-5	42%	19
6. General fear of failure	4%	2
7. Behavioral avoidance of failure	18%	8
8. Denial (or non-acceptance) of mistakes and/or weaknesses	4%	2
9. Lack of interest in achievement	27%	12
10. Impulsiveness and/or inability to concentrate	33%	15
11. Suspicion of slight retardation	9%	4
Cases which do not appear in Categories 6-10	40%	18
Cases which do not appear in Categories 1-10	22%	10
Family -Related Problems		
12. Extreme poverty and poor living conditions (e.g. housing density)	29%	13
13. Poor social conditions (e.g. instances of crime and drug abuse)	4%	2
14. Broken homes	8%	4
15. Shouting abrasiveness and violence among family members	22%	10
16. Parental rejection of child (neglect of medical physical and emotional needs)	24%	11
17. Neglect of child's educational needs	24%	11
18. Family apathy towards the child and/or towards tutoring	4%	2
19. Excessive family pressure (on tutor and child) for visible results in a scholastic achievement	20%	9
20. Attempts to over-involve the tutor in family matters	11%	5
21. Sibling interference in tutoring	8%	4
22. Parents' interference in tutoring	13%	6
23. Lack of minimal working conditions in the home	18%	8
cases which do not fall into at least one of the categories 12-23	20%	9

The figures in Table 10 are also disturbing in light of the fact that children in this sample were chosen in accordance with PERACH selection criteria which called for disadvantaged pupils "in whose case there exists a considerable gap between their potential capabilities and their achievements in school, as assessed by the class teacher and pupil guidance specialists" (p. 81, Eisenberg et al., 1980). The program is not designed for children with severe organic or emotional difficulties and project coordinators are warned against including children in need of professional help. Most central to tutee selection is the chance of the child's benefiting from a personal association with a tutor (from "Criteria for selection of candidates for tutoring," PERACH administration, May 1981; in Hebrew).

In line with the above criteria selection is aimed toward children among the top third in achievement in disadvantaged schools. However, Eisenberg et al. (1983) found that some 40% of the children accepted into the program were from the lowest quartile of their classes. In addition, candidates referred to Davis et al.'s research program by PERACH coordinators were found to be three-quarters of a standard deviation below their class means in achievement.

These findings raise serious questions about the selection of tutee candidates. The figures clearly point to the fact that the population participating in tutoring is much more problematic than was intended or expected by program planners. The question remains whether the source of this problem lies in the selection procedure itself or in the overly-optimistic expectations concerning the types of difficulties which can be dealt with by non-professional tutors.

In their description of the tutee selection, Davis et al. describe the tremendous pressures applied by school personnel (teachers, advisors, social workers, etc.) to include problematic children in the tutoring program. On a number of occasions, the researchers acceded to these demands in order to maintain the school's cooperation for the duration of the program. In some cases, important information was not provided to program implementers at the time of tutee selection — a fact that led to the inclusion of children who were not suited to the program. From these experiences it is clear that strict adherence to selection criteria proves difficult in the field. This may partially explain the problematic nature of the tutee population in the Davis et al. study.

In the description of their "standard program" (a strong guidance and support structure), Davis et al. describe problems which are likely to arise during tutoring and how guidance can help deal with them. These include the risk factors listed in Table 10. In addition to these broad factors the authors related to

specific problems such as cheating in games, lying and stealing, which are likely to arise in one form or another in the population of disadvantaged children in question. The problem is that tutors are likely to react very sharply to behaviors such as these, producing an atmosphere of confrontation and tension. This in turn can adversely affect the tutoring relationship and possibly reduce the effect of the tutoring experience. With guidance from the supervisor, the tutor can learn to anticipate these behaviors, and build an approach which handles them in a positive, constructive way.

The investigators also discussed tutor-related problems and how guidance can help deal with them. For example, virtually all adult tutors start with unrealistically high expectations concerning their ability to effect quick and significant changes in their tutees. This is an important focus of the supervision in the program described by Davis et al. and the relatively low proportion of cases in which this was a problem (4%) is probably an expression of the influence of the supervision.

What is likely to happen in the case of an overly ambitious tutor and a child with ingrained learning and behavioral difficulties? The investigators predicted that whether or not some progress is achieved the likely end result will be extreme disappointment on the part of the tutor followed by dropout or hidden dropout in which the tutorial limps along until the end of the year. There is almost no doubt that the disappointment will be communicated to the child and will be added to his long list of failures. The supervision can help by putting the difficulties and potential contribution of the tutoring into perspective, so that realistic goals and programs can be set. We note here our view that written guidelines and pretutorial training are insufficient. On-the-job supervision is necessary for identifying and anticipating the specific set of problems in each tutorial and for dealing with them.

Additional tutor-related difficulties concern:

1) Tutors who come to tutoring with a strong educational philosophy or ideology (which more often than not has little to say about the particular child and his circumstances);

2) Tutors who attempt to deal with <u>all</u> the many and varied problems apparent in the child and his/her family. This generally leads to jumping from one problem to another;

3) Tutors who are judgemental;

4) Tutors and children who have created a strong dependency of the child on the

tutor;

5) Tutors and children who have difficulty in terminating the tutoring relationship at the end of the school year;

6) Tutors with low motivation; this problem is minimal in programs utilizing volunteers. However, if payment of some form is given for tutoring and if this payment is competitive with those possible in other jobs, applicants for tutoring positions will naturally include some with lower motivation. In this case selection becomes of major importance. The largest program in Israel, PERACH, has significantly increased its stipend. As a result, it has become competitive with many other jobs open to university students. Also, selection is the responsibility of non-professional student coordinators who generally try to attract a large number of tutors to their assigned school. We feel that these factors may greatly increase the proportion of tutors with low motivation. A strong guidance and supervision structure can help detect and deal with tutors whose motivation is low. Unfortunately, there is no such structure in PERACH (a factor which may make this program even more attractive to unmotivated tutors).

In summary, the case study, the data concerning risk factors, as well as information gathered in conversations with program operators and participants all indicate that most tutors face serious difficulties characteristic of disadvantaged children and their families; that most tutors are given minimal support, guidance or structure; and that the actual selection procedures of tutors and of children in the field are far from those specified by program directors.

We feel that these factors, alone or in combination, raise serious questions concerning the efficacy of tutoring in Israel. We have no doubt that in spite of these problems there have been some successful tutoring experiences with unguided tutors. However, there seems to be a poor basis for expecting these programs to produce meaningful general effects on children's achievement, motivation or self-concept.

We turn now to a summary of the eight evaluation studies described in this report. We first present results of the four studies in which complete data were available for calculating effect sizes.

For arriving at effect sizes (ES) when means of two groups are compared, Cohen (1977) has suggested calculating the difference in the means divided by the pooled within group standard deviation. This is sometimes referred to as 'd' or 'Cohen's d.' Cohen suggests the following interpretation of this type of effect size (d): about .2 is "small": about .5 is "medium"; about .8 is "large." However, Rosenthal and Rubin (1982) argue persuasively that this criterion is too severe. In

order to provide an intuitive basis for interpreting effect sizes, Rosenthal and Rubin suggest tying measures such as 'd' and the Pearson correlation (r) which have no intuitive meaning to most researchers to differences in percents which do. They use a 2x2 cross-tabulation table with equal marginal percents as the vehicle. If one dimension is labelled success vs. failure and the other experimental vs. control group, then differences in percent success can be used as a basis for interpreting 'd' or 'r'. For example, an effect size (d) of .5 is shown by Cohen to be equivalent to a correlation of .24 (Table 2.2.1, p. 22) and Rosenthal and Rubin show that a correlation of .24 is equivalent to a change in success rate from 38% to 62%. They claim that this change (defined as "medium" by Cohen) is very large by most social science research standards. Following their procedure (BESD: Binomial effect size display) we transformed ES sizes into equivalent changes in success rate. For example, ES = .4 is equivalent to a change in success rate from 40% successes to 60% successes. We consider this change of 20% to be a "large" effect. ES = .2 is equivalent to a change in success rate of 10% which we consider "moderate." ES = .1 is equivalent to a change in success rate of 5% which we consider "small." Any ES less than .05 is equivalent to changes of less than 2.5% which we consider "negligibly small."

In Part One of Table 11 we present the direct comparison of a strong with a minimal guidance framework. In both achievement and classroom participation, there was a moderate effect in favor of the guidance framework. Parts Two and Three of the Table present the results of tutoring versus no-tutoring controls. We divided the results into two sets: strong guidance tutoring versus controls; minimal or no-guidance tutoring versus controls. For achievement, the average effect of strong guidance programs was moderate to large (ES = .4) while that of minimal guidance programs was negligibly small (ES = ~.04). The corresponding average effects on participation for strong guidance was moderate (ES = .16) while that of minimal guidance was small (ES = .08).

Both the direct comparison of strong and minimal guidance frameworks and the indirect comparison (against controls) indicate that guidance led to a stronger effect on achievement and on homework and class participation. The minimal guidance programs had a negligible effect on achievement and a negligible to small effect on participation.

Table 11. Summary of First-Year Effect Sizes on Four Evaluation Studies[1]

	Achievement ES	Homework Preparation and Classroom Participation ES
1. Intensive versus minimal guidance frameworks		
Davis et al.	.24	.20
2. Intensive guidance framework versus no-tutoring control		
Bar-Eli and Raviv	.65	—
Davis et al. Program A	.34	.19
Davis et al. Program B	.21	.12
Average	.40	.16
3. Minimal guidance framework versus no-tutoring control		
Oseasohn[2]	-.19	.17
Eisenberg et al.		
1978	.01	—
1980	-.38	.14
1982[3]	.32	-.03
Davis et al.	.06	.05
Average	-.04	.08

[1]Only first-year results of the Davis et al. study are presented here, so that they may be compared with other one-year tutoring programs. The ES reported for Davis et al. and for Oseasohn were calculated using the standard deviation for the entire class. Because the children in their studies were from the lower end of the achievement scale in their classes, this standard deviation will generally be larger than the within-group standard deviation used to analyze the data from the Eisenberg et al. and Bar-Eli and Raviv studies. As a result, the effect sizes for Davis et al. and Oseasohn are most probably somewhat biased downwards.

In addition, Bar-Eli did not include in her analysis matched pairs in which the tutored child did not complete the tutorial. Eisenberg et al. excluded children who did not complete the tutorial, while including their matched controls. Because dropout from a program such as tutoring is usually selective, the results of the Bar-Eli study and especially those of Eisenberg et al. may tend to be upwardly biased.

[2]On paper this was a moderate to intensive guidance framework. However, Oseasohn reported that the guidance actually given was minimal. Had the results of this study been included in category 2, the only non-negligible change would have been for achievement in this category (from a strong effect of .40 to a moderate effect of .26).

[3] This was an interim report of first-year effect sizes. The final report included an examination of the effect of two years of tutoring which was found to be negligible. That is, the first-year effect was largely neutralized in the second year (Eisenberg et al., 1983).

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We feel that these data provide a conservative estimate of the advantage of strongly guided tutoring over minimally guided tutoring (see Footnotes of Table 11). In addition, the results of the four Israeli studies which did not present complete information for calculating overall effect sizes are consistent with the results in Table 11.

In summary, the eight Israeli evaluation studies indicate a stronger effect for guided versus minimally guided tutoring and a negligible effect for minimally guided tutoring.

We turn now to the results of a meta-analysis of 65 studies of the effects of tutoring in the United States (Cohen et al., 1982).

In order to arrive at an overall estimate of the Israeli effect size which is comparable to that of Cohen et al., we first obtained average effect sizes for each investigator:

Bar-Eli and Raviv	.65		Mathematics
Davis et al.	.20	(.34,.21,.06)	Mathematics and Reading - first year
Eisenberg et al.	-.02	(.01,-.38,.32)	Mathematics, Reading, English, Bible
Oseasohn	-.19		Mathematics
Average	.16		

This average for the four independent studies (.16) is much lower than the .4 average obtained for the 52 American studies (out of 65) which reported an achievement measure.

One possible explanation is that Cohen et al. examined only programs which took place in schools and, although it was not stated explicitly, it was clear that the tutoring was during school hours. Most of the Israeli programs were outside the school or, if in school, were after school hours. The only Israeli program which took place during school hours was that examined by Bar-Eli and Raviv. This also had the largest effect size (.65). Furthermore, the Bar-Eli and Raviv program focussed on Mathematics only, and Cohen et al. also examined results according to subject and found an average effect size of .60 in Mathematics (18 studies). The Israeli program examined by Oseasohn also focussed on Mathematics but took place in the child's or tutor's home after school. The effect size on Mathematics was -.19.

There are many problems in comparing results of different studies in different countries, but we cannot help but conjecture that within-school-hours tutoring programs have greater impact on achievement than after-school or out-of-

school programs. This seems reasonable in light of the possibility of greater control of tutoring activities and the likelihood of more academic versus social or game-oriented activities. Davis et al. found that only about 40% of tutoring time in their guided tutoring frameworks was concerned with Reading or Mathematics. This occurred in programs with a relatively strong learning orientation, and it is reasonable to assume that in unguided tutoring programs that the percent is much lower. The low percent is not necessarily "bad." It is clear that most Israeli tutoring programs are aimed at social as well as academic goals. As a result, tutoring meetings are scheduled for about two hours and generally include enrichment activities outside the home (e.g., visits to the museum), as well as conversations on important social or personal issues (e.g. relationships with friends, study habits, cleanliness).

It is conceivable that in the long run the positive effects on achievement of tutoring outside the school will be maintained better than those of tutoring within the school (that focusses purely on achievement). Theoretically, this would be a result of improved social and personal adjustment, improved self-concept, and motivation to learn which are more likely to be affected by a warmer and deeper relationship developed through long-term social interactions between tutor and tutee. However, the results of the Israeli and American studies are not encouraging in this respect. Firstly, in Table 11 we see that the average effect of unguided tutoring on class and school participation was not much better than that on achievement; also, for guided programs the average effect on class and school participation was lower than that on achievement. Secondly, Davis et al. found that in the second year of both guided tutoring programs and the unguided program there were negative trends in homework and class participation effect sizes (compared with control children). Thirdly, the results concerning self-concept are discouraging. In Table 7 we presented effect sizes calculated on PERACH data (Eisenberg et al.). The average effect size over a number of types of self-concept was .01 and the average effect size for school self-concept was -.08.

Sprinzak reported a negative effect on self-concept (in secular schools ES = -.46; in religious schools ES = -.02). For 9 studies investigating self-concept, Cohen et al. reported an average ES of .09 which they described as "very small."

In summary, the results of the Israeli and American studies indicate that unguided tutoring had negligible to small effects on achievement, school motivation and self-concept. After-school guided programs had moderate effects on

achievement and small effects on motivation. In-school programs had strong effects on achievement, but small effects on self-concept.

Another finding of interest from Cohen et al. concerns the effect of tutoring as a function of length of program. The mean effect size for short programs (0-4 weeks) was .95; for moderately long programs (5-18 weeks) was .42; for long programs (19-36 weeks) was .16. Interestingly, the four Israeli programs in this comparison were in the latter category and also had an average effect size of .16. This may partially account for the lower effect sizes in Israel. However, we are somewhat suspicious of Cohen et al.'s short program effect (.95) — if testing was done immediately following the short tutorial period, the effect may have been a result of initial, high motivation which later decreased (although there was no clear evidence of such an effect in the Davis et al. study which provided relevant data).

Finally, we turn to the examination of the effects in Reading versus Mathematics. In the investigation of guided tutoring, Davis et al. found more positive effects on Reading than on Mathematics (on objective tests). This was to be expected since there was more emphasis on Reading. However, in the investigations of PERACH, Mathematics results were generally more positive (or less negative) than those of Reading. Also, Cohen et al. found greater effects on Mathematics versus Reading.

It may be that the advantage for Mathematics is a result of the fact that tutoring programs in Mathematics naturally tend to be more structured. Since Davis et al. found stronger results on Reading in the guided programs we conclude that, with guidance, tutoring in Reading can be effective. Schwartz (1977) found that a highly structured Reading program had a strong effect while a non-structured program had no effect on Reading performance. Also, the Israeli study of unstructured minimal guidance tutoring in Mathematics found a negative effect (Oseasohn, 1984). As a result we do not recommend that tutoring programs be developed only in Mathematics or only in Reading. With guidance and/or structure both can be effective.

In conclusion, we question the efficacy of unguided tutoring programs for disadvantaged children. Apparently Bloom's "warm, sensitive" adult is not enough in these cases. Worse, the question of negative effects cannot be avoided in the face of the results. They cropped up in too many Israeli studies — Sprinzak, Prinz, Oseasohn, Eisenberg et al., Davis et al.

The widespread assumption that educational programs will have positive effects

or no effects is untenable. It is based on a view of educational programs which is empty of process. One of the purposes of Davis et al.'s case studies was to prevent educators and educational researchers from ignoring the normal pitfalls in implementing educational programs. Facing the pitfalls will teach us that social intervention, no matter how well intended, can harm as well as help. Raven (1980) has faced the issue in his article, "Intervention as Interference" as has Shamgar-Handelman (1982) in a paper, "The Hidden Costs of Home Intervention." What we must recognize is that tutors come to children and their families as representatives of the universities and the Ministry of Education. They are encouraged to form a close, positive relationship with the child and the family both of which are likely to exhibit many more social and psychological problems than most. In these cases the child is particularly vulnerable, and there is a good chance that difficulties in tutor-tutee-family interactions will develop.

As a result, we see no alternative to introducing strong guidance and support for tutors of disadvantaged children. Further research should focus on minimum requirements for guidance and support and on comparisons of alternative guidance strategies.

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